What Is Claimed:

1. A actuator comprising:

a motor for rotating an input shaft connected to an output device via a gear train;

an interrupter vane connected to the output device and adapted to travel in a path corresponding to the movement of the output device;

at least two interrupter switches spaced apart from one another along the path of the interrupter vane at locations corresponding to travel limits of the output device, each interrupter switch comprising a source, a detector spaced from the source, and an interrupter channel aligned with the travel path of the interrupter vane and located between the source and the detector, the interrupter vane adapted to be positioned within the interrupter channel when the output device is positioned at the corresponding travel limit, each interrupter switch adapted to indicate whether the detector detects an emission from the source; and

a controller connected to a power supply and to the interrupter switches for energizing the motor in response to a command signal and for de-energizing the motor in response to an indication from one of the interrupter switches that the interrupter vane is at or approaching one of the travel limits.

2. The actuator of claim 1, wherein the actuator comprises a rotary actuator and the output device comprises a rotating output shaft, the interrupter vane is fixed to and radially extended from the output shaft such that the interrupter vane travels in a rotational path, and the interrupter switches are radially spaced from the output shaft and rotationally spaced from one another such that each interrupter channel is radially aligned with the rotational path of the interrupter vane.

3. The actuator of claim 1, wherein the actuator comprises a linear actuator and the output device has a linear path.

4. The actuator of claim 1, wherein the interrupter switches are opto-interrupter switches in which the source comprises a light source and the detector comprises a photodetector.

5. The actuator of claim 1, wherein the source is a light emitting diode (LED).

6. The actuator of claim 5, wherein the LED is adapted to emit primarily infrared light.

7. The actuator of claim 1, wherein the interrupter switch signal transmitters are adapted to indicate a proportional amount of the source emission detected.

8. The actuator of claim 1, wherein the controller is adapted to de-energize the motor in response to an indication from the interrupter switch that a predetermined amount of the source emission is detected that is less than a full source emission.

9. The actuator of claim 8, wherein the controller is adapted to de-energize the motor in response to an indication from the interrupter switch that the predetermined amount of the source emission detected is closer to no source emission than to a full source emission.

10. The actuator of claim 1, wherein the controller is adapted to energize the motor with a first voltage when the output device is located in a first limit position and to energize the motor with a second voltage when the output device is located in a second limit position.

11. The actuator of claim 10, wherein the second voltage is opposite in polarity and equal in magnitude to the first voltage.

12. The actuator of claim 10, wherein the controller comprises an H-Bridge circuit.

13. The actuator of claim 12, wherein the controller further comprises one or more circuits for monitoring motor current, clamping voltage spikes in actuator control voltages, locking out inappropriate control signals, or a combination thereof.

14. The actuator of claim 1, further comprising a position indicator corresponding to each interrupter switch.

15. The actuator of claim 14, wherein the indicator comprises a MOSFET switch.

16. The actuator of claim 2, wherein the interrupter switches are rotationally spaced 90 degrees apart from one another.

17. The actuator of claim 2, wherein the output device is connected to a valve.

18. The actuator of claim 1, wherein the actuator is adapted for aerospace service.

19. The actuator of claim 1, wherein the motor comprises a DC motor.

20. The actuator of claim 2, wherein the gear train comprises a set of planetary gears.

21. The actuator of claim 3, wherein the output device comprises has a linear motion actuated by a first screw and the interrupter vane has a linear motion actuated by a second screw.

22. The actuator of claim 21, wherein the output device moves along a first path that has a first length in a first direction, and the interrupter vane moves along a second path that has a second length in a second direction, in which one of: (a) the first length is not equal to the second length, (b) the first direction is different from the second direction, or (c) a combination of (a) and (b).

23. The actuator of claim 1, wherein the controller is further adapted to provide dynamic braking of the motor in addition to de-energizing the motor.

24. The actuator of claim 23, wherein the controller is adapted to initiate dynamic braking by shorting together terminals of the motor.

25. The actuator of claim 23, wherein the interrupter switch signal transmitters are adapted to indicate a proportional amount of the source emission detected and the controller is adapted to initiate dynamic braking in response to an indication from the interrupter switch that a predetermined amount of the source emission is detected that is less than a full source emission and closer to no source emission than a full source emission.

26. An airplane comprising one or more actuators, each actuator comprising:

a motor for rotating an input shaft connected to an output device via a gear train;

an interrupter vane connected to the output device and adapted to travel in a path corresponding to the movement of the output device;

at least two interrupter switches spaced apart from one another along the path of the interrupter vane at locations corresponding to travel limits of the output device, each interrupter switch comprising a source, a detector spaced from the source, and an interrupter channel aligned with the travel path of the interrupter vane and located between the source and the detector, the interrupter vane adapted to be positioned within the interrupter channel when the output device is positioned at the corresponding travel limit, each interrupter switch adapted to indicate whether the detector detects an emission from the source; and

a controller connected to a power supply and to the interrupter switches for energizing the motor in response to a command signal and for de-energizing the motor in response to an indication from one of the interrupter switches that the interrupter vane is at or approaching one of the travel limits.

27. A rotary actuator for operating a valve, the actuator comprising:

a motor for rotating a drive shaft connected to the valve;

an interrupter vane fixed to and radially extended from the drive shaft, the interrupter vane adapted to travel in a rotational path;

a pair of opto-interrupter switches radially spaced relative to the shaft and rotationally spaced from one another along the rotational path of the interrupter vane at locations corresponding to travel limits of the shaft, each opto-interrupter switch comprising a source, a phototransistor spaced from the source and adapted to transmit a voltage proportional to an amount of light detected by the phototransistor, and an interrupter channel radially aligned with the rotational path of the interrupter vane and located between the source and the phototransistor, the interrupter vane adapted to be positioned within the interrupter channel when the shaft is positioned at the corresponding travel limit; and

a controller connected to a power supply and to the opto-interrupter switches for energizing the motor in response to a command signal and for de-energizing and dynamically braking the motor in response to an absence of current received from either of the opto-interrupter switches, the controller adapted to energize the motor with a first voltage upon receipt of the command signal in the absence of a threshold voltage from a first of the interrupter switches, and to provide a second voltage upon receipt of the command signal in the absence of a threshold voltage from a second of the interrupter switches, the second voltage opposite in polarity and equal in magnitude to the first voltage, the controller further adapted to initiate dynamic braking in response to an indication from the interrupter switch that a predetermined amount of the source emission is detected that is less than a full source emission and closer to no source emission than a full source emission.